POTENTIAL OF CONTEMPORARY EARTH ARCHITECTURE FOR LOW IMPACT BUILDING IN BELGIUM
Yazd, Iran
(Jasper Van der Linden, 2011)
Haus Rauch, Schlins, Austria, 2008

(Beat Büchner)
Watchtower Negenoord, Belgium, 2016
(Jasper Van der Linden, 2019)
Study: potential of contemporary earth architecture for low impact building in Belgium

1. Advantages and limitations of earth construction: current literature

2. Building Case studies:
   • 2 projects
   • Verify validity of literature
     • Interviews with architects
     • Project study

3. Conclude
   • Financial cost
   • Technical aspects
   • Environmental impact
Literature: advantages and limitations of earth construction
as listed by Egenti C, Khatib J. 2016

ADVANTAGES

LOW COST
- ENCOURAGES SELF-HELP
- GOOD SOUND INSULATION
- GOOD HEAT INSULATION
- GOOD FIRE RESISTANCE
- IMPROVES INDOOR AIR QUALITY
- CAPABLE OF PROVIDING STRONG AND SECURED STRUCTURE
- PROMOTES CULTURE, NATURAL MATERIAL

REUSABLE
- LOW EMBODIED ENERGY
- SAVES ENERGY AND NO EMISSION OF CO2

LIMITATIONS

NON-STANDARDISED MATERIAL
- STRUCTURALLY LIMITED
- NON-RESISTANT TO WATER AND LESS RESILIENT
- NEEDS HIGH MAINTENANCE
- SUITABLE ONLY FOR IN SITU CONSTRUCTION

SPECIAL SKILLS REQUIRED

SUFFICIENTLY AVAILABLE
case studies
bioclass & observation tower

Bioclass, Edegem (Antwerp), 2018
BC architects & studies
(Thomas Noceto)

Observation tower, Negenoord (Limburg), 2016
De gouden liniaal architecten
(Filip Dujardin)
case studies

compressed earth bricks & rammed earth

Bioclass Edegem (Antwerp), 2018
Load-bearing compressed earth bricks
(Thomas Noceto)

Observation tower Negenoord (Limburg), 2016
Rammed earth
(Filip Dujardin)
case study

bioclass (compressed earth bricks)

Bioclass Edegem (Antwerp), 2018
Load-bearing compressed earth bricks
(Thomas Noceto)

Observation tower Negenoord (Limburg)
Rammed earth
(Filip Dujardin)
Load-bearing compressed earth bricks

(Thomas Noceto)
Bioclass, Edegem, 2018
Load-bearing compressed earth bricks
(Thomas Noceto)
Bioclass, Edegem, 2018
Load-bearing compressed earth bricks
(BC architects & studies)
Load-bearing compressed earth bricks

(BC architects & studies)
case study

observation tower (rammed earth)

Bioclass, Edegem, 2018
Load-bearing compressed earth bricks
(BC architects & studies)

Observation tower Negenoord (Limburg) - 2016
De gouden liniaal architecten
(Filip Dujardin)
Observation tower, Negenoord
Exterior
(Filip Dujardin)
Observation tower, Negenoord
Plan + 3D
Observation tower, Negenoord
Interior
(Filip Dujardin)
Observation tower Negenoord
Close-up of two walls in 2019
(Jasper Van der Linden)
Observation tower Negenoord
In-situ mixing and construction
(BC architects & studies)
case studies

bioclass & observation tower

Bioclass, Edegem (Antwerp), 2018
BC architects & studies
(Thomas Noceto)

Observation tower, Negenoord (Limburg), 2016
De gouden liniaal architecten
(Filip Dujardin)
Conclusions

Financial cost:  
not necessarily cheaper than conventional construction

Technical aspects:  
no technical reasons for not using earth construction in Belgium

Environmental impact:  
earth does offer potential to construct with low environmental impact
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